AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

1. (Currently Amended) A method for detecting a pretilt angle of an element in which the direction of orientation of molecules is twisted from a light incident side to light outgoing side, the method comprising:

~~measuring transmitted light intensity of light that has come from the light incident side for a plurality of light incident angles;~~

measuring transmitted light intensity of light from the light incident side for a plurality of light incident angles by rotating the element about an axis perpendicular to the direction of transmitted light towards the element;

analyzing dependence of the measured transmitted light intensity for the plurality of light incident angles; and

determining the pretilt angle of the element based upon the analysis results.

2. (Currently Amended) [[A]] The method as described in Claim 1, wherein the step of analyzing the dependence of the measured transmitted light intensity for the plurality of light incident angles, an apparent retardation for the plurality of light incident angles is determined based upon the measured transmitted light intensity for the plurality of light incident angles, and

in the step of detecting the pretilt angle of the element based upon the analysis results, the pretitle angle of theelement is determined based upon the determined apparent retardation for the plurality of light incident angles. ~~for detecting a pretilt angle of an element in which the direction of orientation of molecules is twisted from a light incident side to a light outgoing side, the method comprising:~~

~~measuring transmitted light intensity of light that has come from the light incident side for a plurality of light incident angles and at a plurality of optical element arrangements for each light incident angle;~~

~~analyzing dependence of the measured transmitted light intensity for the plurality of light incident angles; and~~

~~determining the pretilt angle of the element based upon the analysis results.~~

3. (Currently Amended) The method as described in Claim [[2]] 1, wherein in the step of analyzing the dependence of the measured transmitted light intensity for the plurality of light incident angles, Stokes parameters for the plurality of light incident angles are ~~an apparent retardation for the plurality of light incident angles is~~ determined based upon the measured transmitted light intensity for the plurality of light incident angles, and in the step of detecting the pretilt angle of the element based upon the analysis results, the pretilt angle of the element is determined based upon the determined Stokes parameters ~~apparent retardation~~ for the plurality of light incident angles.

4. (Currently Amended) The method as described in Claim [[2]] 1, wherein in the step of measuring the ~~analyzing the dependence of the measured~~ transmitted light intensity for the plurality of light incident angles, monochromatic light is incident from the light incident side ~~Stokes parameters for the plurality of light incident angles are determined based upon the~~

~~measured transmitted light intensity for the plurality of light incident angles, and in the step of detecting the pretilt angle of the element based upon the analysis results, the pretilt angle of the element is determined based upon the determined Stokes parameters for the plurality of light incident angles~~.

5. (Currently Amended) The method as described in Claim [[4]] 2, wherein in the step of detecting the pretilt angle of the element based upon the analysis results, an average tilt angle ~~apparent retardation for the plurality of light incident angles is determined based upon the determined Stokes parameters for the plurality of light incident angles, and the pretilt angle of the element~~ is determined based upon the determined apparent retardation for the plurality of light incident angles, and the pretilt angle is determined based upon the determined average title angle.

6. (Currently Amended) The method as described in Claim [[5]] 2, wherein the step of measuring the transmitted light intensity for the plurality of light incident angles, the transmitted light intensity is measured in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan \alpha^{in} = -\frac{\Phi - \sin \Phi}{1 - \cos \Phi} .$$

~~detecting the pretilt angle of the element based upon the analysis results, an average tilt angle is determined based upon the determined apparent retardation for the plurality of light incident angles, and the pretilt angle is determined based upon the determined average tilt angle.~~

7. (Currently Amended) The method as described in Claim [6] 3, wherein in the step of measuring the transmitted light intensity for the plurality of light incident angles, the

transmitted light intensity is measured in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan \alpha^{in} = -\frac{\Phi - \sin \Phi}{1 - \cos \Phi} .$$

8. (Currently Amended) ~~The method as described in Claim 7, wherein in the step of measuring the transmitted light intensity for the plurality of light incident angles, monochromatic light is incident from the light incident side.~~ A method for detecting a pretilt angle of an element in which the direction of orientation of molecules is twisted from a light incident side to a light outgoing side, the method comprising:

measuring transmitted light intensity of light from the light incident side for a plurality of light incident angles by rotating the element about an axis perpendicular to the direction of transmitted light towards the element and at a plurality of optical element arrangements for each light incident angle;

analyzing dependence of the measured transmitted light intensity for the plurality of light incident angles; and

determining the pretilt angle of the element based upon the analysis results.

9. (Currently Amended) ~~An apparatus for detecting a pretilt angle arranged in the following sequence: a light source, a polarizer, an element in which the direction of orientation of molecules is twisted from a light incident side to a light outgoing side, an analyzer, and a photodetector, wherein the apparatus also comprises a processing device for processing output signals from the photodetector, the processing device analyzes the dependence of transmitted light intensity on a light incident angle based upon the transmitted light intensities for a plurality of light incident angles that were output from the photodetector, and detects the pretilt angle of~~

~~the element based upon the analysis results.~~ The method as described in Claim 8, wherein in the step of analyzing the dependence of the measured transmitted light intensity for the plurality of light incident angles, an apparent retardation for the plurality of light incident angles is determined based upon the measured transmitted light intensity for the plurality of light incident angles, and in the step of detecting the pretilt angle of the element based upon the analysis results, the pretilt angle of the element is determined based upon the determined apparent retardation for the plurality of light incident angles.

10. (Currently Amended) The ~~apparatus~~ method as described in Claim [[9]] 8, wherein ~~a quarter wave plate is provided between the element and the analyzer~~ in the step of analyzing the dependence of the measured transmitted light intensity for the plurality of light incident angles, Stokes parameters for the plurality of light incident angles are determined based upon the measured transmitted light intensity for the plurality of light incident angles, and in the step of detecting the pretilt angle of the element based upon the analysis results, the pretilt angle of the element is determined based upon the determined Stokes parameters for the plurality of light incident angles.

11. (Currently Amended) The ~~apparatus~~ method as described in Claim [[10]] 8, wherein ~~the processing device analyzes the dependence of the transmitted light intensity on the light incident angle based upon the transmitted light intensities for a plurality of optical element arrangements for each of the plurality of light incident angles that was output from the photodetector, and detects the pretilt angle of the element based upon the analysis results~~ in the step of measuring the transmitted light intensity for the plurality of light incident angles, monochromatic light is incident from the light incident side.

12. (Currently Amended) The ~~apparatus~~ method as described in Claim [[11]] 10, wherein in the step of detecting the pretilt angle of the element based upon the analysis results, an apparent retardation for the plurality of light incident angles is determined based upon the determined Stokes parameters for the plurality of light incident angles, and the ~~the processing device detects an apparent retardation for the plurality of light incident angles based upon the transmitted light intensities output from the photodetector and detects the~~ pretilt angle of the element is determined based upon the determined apparent retardation for the plurality of light incident angles.

13. (Currently Amended) The ~~apparatus~~ method as described in Claim [[11]] 12, wherein in the step of detecting the pretilt angle of the element based upon the analysis results, an average title angle is determined based upon the determined retardation for the plurality of light incident angles, and the pretilt angel is determined based upon the determined average tilt angle ~~the processing device calculates Stokes parameters for the plurality of light incident angles based upon the transmitted light intensity output from the photodetector and determines the pretilt angle of the element based upon the determined Stokes parameters for the plurality of light incident angles~~.

14. (Currently Amended) The ~~apparatus~~ method as described in Claim [[13]] 12, wherein in the step of measuring the transmitted light intensity for the plurality of light incident angles, the transmitted light intensity is measured in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan \alpha^{in} = -\frac{\Phi - \sin \Phi}{1 - \cos \Phi} .$$

~~the processing device further calculates an apparent retardation for a plurality of light incident angles based upon the determined Stokes parameters for the plurality of light incident angles and determines the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.~~

15. (Currently Amended) The ~~apparatus~~ method as described in Claim [[14]] 13, wherein in the step of measuring the transmitted light intensity for the plurality of light incident angles, monochromatic light is incident from the light incident side ~~the processing device determines the average tilt angle based upon the determined apparent retardation for the plurality of light incident angles and determines the pretilt angle based upon the determined average tilt angle~~.

16. (Currently Amended) [[The]] An apparatus for detecting a pretilt angle arranged in the following sequence: a light source, a polarizer, an element in which the direction of orientation of molecules is twisted from a light incident side to a light outgoing side, an analyzer, and a photodetector, wherein the apparatus also comprises a processing device for processing output signals from the photodetector, the processing device analyzes the dependence of transmitted light intensity on a light incident angle based upon the transmitted light intensities for a plurality of light incident angles that were output from the photodetector, wherein a plurality of light incident angles are determined by rotating the element about an axis perpendicular to the direction of light from the light source, in which light is transmitted in the direction towards the element, and detects the pretilt angle of the element based upon the analysis results.~~as described in Claim 15, wherein the pretilt angle is determined based upon the transmitted light intensity in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of~~

~~molecules at the light-incident side interface of the element and the twist angle Φ (rad) of the element:~~

$$\tan \alpha^{in} = \frac{\Phi - \sin \Phi}{1 - \cos \Phi}$$

17. (Currently Amended) The apparatus as described in Claim 16, wherein a quarter-wave plate is provided between the element and the analyzer ~~comprising a light source emitting monochromatic light or a converter for converting the light emitted by a light source into monochromatic light~~.

Please add new claims 18-39 as follows:

18. (New) The apparatus as described in Claim 16, wherein the processing device analyzes the dependence of the transmitted light intensity on the light incident angle based upon the transmitted light intensities for a plurality of optical element arrangements for each of the plurality of light incident angles that was output from the photodetector, and detects the pretilt angle of the element based upon the analysis results.

19. (New) The apparatus as described in Claim 16, wherein the processing device detects an apparent retardation for the plurality of light incident angles based upon the transmitted light intensities output from the photodetector and detects the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.

20. (New) The apparatus as described in Claim 16, wherein the processing device calculates Stokes parameters for the plurality of light incident angles based upon the transmitted light intensity output from the photodetector and determines the pretilt angle of the element based upon the determined Stokes parameters for the plurality of light incident angles.

21. (New) The apparatus as described in Claim 16, comprising a light source emitting monochromatic light or a converter for converting the light emitted by a light source into monochromatic light.

22. (New) The apparatus as described in Claim 17, wherein the processing device analyzes the dependence of the transmitted light intensity on the light incident angle based upon the transmitted light intensities for a plurality of optical element arrangements for each of the plurality of light incident angles that was output from the photodetector, and detects the pretilt angle of the element based upon the analysis results.

23. (New) The apparatus as described in Claim 17, wherein the processing device detects an apparent retardation for the plurality of light incident angles based upon the transmitted light intensities output from the photodetector and detects the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.

24. (New) The apparatus as described in Claim 17, wherein the processing device calculates Stokes parameters for the plurality of light incident angles based upon the transmitted light intensity output from the photodetector and determines the pretilt angle of the element based upon the determined Stokes parameters for the plurality of light incident angles.

25. (New) The apparatus as described in Claim 17, comprising a light source emitting monochromatic light or a converter for converting the light emitted by a light source into monochromatic light.

26. (New) The apparatus as described in Claim 18, wherein the processing device detects an apparent retardation for the plurality of light incident angles based upon the transmitted light intensities output from the photodetector and detects the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.

27. (New) The apparatus as described in Claim 18, wherein the processing device calculates Stokes parameters for the plurality of light incident angles based upon the transmitted light intensity output from the photodetector and determines the pretilt angle of the element based upon the determined Stokes parameters for the plurality of light incident angles.

28. (New) The apparatus as described in Claim 22, wherein the processing device detects an apparent retardation for the plurality of light incident angles based upon the transmitted light intensities output from the photodetector and detects the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.

29. (New) The apparatus as described in Claim 22, wherein the processing device calculates Stokes parameters for the plurality of light incident angles based upon the transmitted light intensity output from the photodetector and determines the pretilt angle of the element based upon the determined Stokes parameters for the plurality of light incident angles.

30. (New) The apparatus as described in Claim 26, wherein the processing device determines the average tilt angle based upon the determined apparent retardation for the plurality of light incident angles and determines the pretilt angle based upon the determined average tilt angle.

31. (New) The apparatus as described in Claim 26, wherein the pretilt angle is determined based upon the transmitted light intensity in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan\alpha^{in} = -\frac{\Phi - \sin\Phi}{1 \quad \cos\Phi}.$$

32. (New) The apparatus as described in Claim 27, wherein the processing device further calculates an apparent retardation for a plurality of light incident angles based upon the determined Stokes parameters for the plurality of light incident angles and determines the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.

33. (New) The apparatus as described in Claim 27, wherein the processing device determines the average tilt angle based upon the determined apparent retardation for the plurality of light incident angles and determines the pretilt angle based upon the determined average tilt angle.

34. (New) The apparatus as described in Claim 27, wherein the pretilt angle is determined based upon the transmitted light intensity in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan\alpha^{in} = -\frac{\Phi - \sin\Phi}{1 \quad \cos\Phi}.$$

35. (New) The apparatus as described in Claim 28, wherein the processing device determines the average tilt angle based upon the determined apparent retardation for the plurality of light incident angles and determines the pretilt angle based upon the determined average tilt angle.

36. (New) The apparatus as described in Claim 28, wherein the pretilt angle is determined based upon the transmitted light intensity in a state in which the following relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan\alpha^{in} = -\frac{\Phi - \sin\Phi}{1 \quad \cos\Phi}.$$

37. (New) The apparatus as described in Claim 29, wherein the processing device further calculates an apparent retardation for a plurality of light incident angles based upon the determined Stokes parameters for the plurality of light incident angles and determines the pretilt angle of the element based upon the determined apparent retardation for the plurality of light incident angles.

38. (New) The apparatus as described in Claim 29, wherein the processing device determines the average tilt angle based upon the determined apparent retardation for the plurality of light incident angles and determines the pretilt angle based upon the determined average tilt angle.

39. (New) The apparatus as described in Claim 29, wherein the pretilt angle is determined based upon the transmitted light intensity in a state in which the following

relationship is valid between the orientation direction α^{in} (rad) of molecules at the light incident side interface of the element and the twist angle Φ (rad) of the element:

$$\tan\alpha^{in} = -\frac{\Phi - \sin\Phi}{1 \quad \cos\Phi}.$$